

## ABSTRACT OF THE DISCLOSURE

An aluminide bond coat for a thermal barrier coating (TBC) system and method for modifying the grain structure of the aluminide bond coat in order to improve the thermal fatigue life of the coating system. As deposited, the aluminide bond coat has columnar grains that extend from a diffusion zone beneath the bond coat to the bond coat surface, such that grain boundaries are exposed at the surface of the bond coat. The surface of the bond coat is then peened or otherwise cold worked with a sufficient intensity to cause recrystallization of at least the surface of the bond coat when sufficiently heated, such as during a subsequent heat treatment or during deposition of a ceramic topcoat. The effect of recrystallization is that new grains form at the bond coat surface, replacing the original columnar grains.